

# Urban environmental governance innovations in China

Arthur PJ Mol

China's system of environmental governance is changing rapidly, resulting in new environmental institutions and practices. State authorities rule increasingly via laws and decentralise environmental policymaking and implementation. Non-state actors – both private companies and (organised) citizens – are given and taking more responsibilities and tasks in environmental governance. This results in new relations between state, market and civil society in environmental governance, with more emphasis on efficiency, accountability and legitimacy. The diffusion of these governance innovations throughout China as well as their environmental effectiveness will be focal points for future research.

## Address

Department of Social Sciences, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands

Corresponding author: Mol, Arthur PJ ([Arthur.mol@wur.nl](mailto:Arthur.mol@wur.nl))

**Current Opinion in Environmental Sustainability** 2009, 1:96–100

This review comes from the inaugural issues  
Edited by Rik Leemans and Anand Patwardhan

Available online 8th August 2009

1877-3435/\$ – see front matter  
© 2009 Elsevier B.V. All rights reserved.

DOI [10.1016/j.cosust.2009.07.002](https://doi.org/10.1016/j.cosust.2009.07.002)

## Introduction

While national systems of environmental governance in most OECD countries have shown a considerable degree of stability over the past two decades, in China environmental governance is in flux [1]. Between 1991 and 2007, the staff of state environmental authorities increased from 70 000 to well over 170 000 and governmental environmental investments increased from RMB 10 billion to RMB 340 billion (and from 0.6% of GDP to 1.36% of GDP). Equally astonishing is the – still ongoing – transformation in environmental governance institutions, the subject of this review. The reasons behind these dynamics in environmental governance are manifold. A period with unprecedented economic growth and a massive increase in urbanisation have accelerated natural resource use and environmental pollution dramatically, certainly over the past decade. Secondly, both new state–market relations following the transition of the former centrally planned economy and inadequate state environmental authorities called for new modes of – and new actors in – environmental governance. Third, higher living standards of especially the urban population and

a less rigid authoritarian state provided room for more civil expressions of environmental discontent. This further pushed reforms in environmental policy-making. And lastly, the rapid integration in the world economy and polity increased international and national demands for new state policies [2]. This article reviews some of the most important recent innovations in urban environmental governance in China.

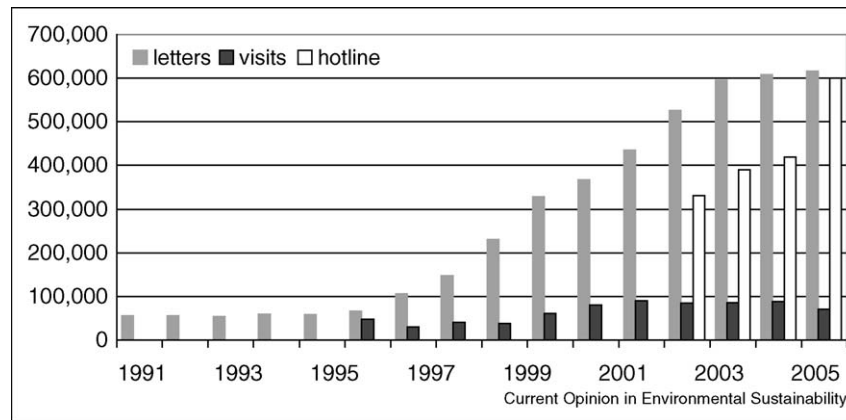
## Transitions within the environmental state system

Internally, the system of environmental state organisations in China is showing remarkable changes since the turn of the millennium, of which four deserve mentioning.

First, the content of environmental policy-making is rapidly modernised and updated. New environmental laws, such as the Cleaner Production Promotion Law (of 2002) [3], the Environmental Information Disclosure Decree (of 2008), and the Law on Promoting Circular Economy (of 2009), and new environmental policy instruments, such as voluntary agreements [4] and emission trading [5], point at a harmonisation of China's environmental policy with that of OECD countries. But operationalisation and implementation of these modern environmental strategies keep some of their Chinese characteristics: low fines, an emphasis on promotion rather than regulation, and a complicated division of responsibilities between horizontal and vertical lines. Regardless the strong international influence and cooperation, some typically Chinese environmental policies remain intact, such as the three simultaneous principle [6] and the National Environmental Model City program [7].

Second, decentralisation and more flexibility in environmental policy-making and implementation are paralleled by moving away from a rigid, hierarchical, command-and-control system. Increasingly local and provincial Environmental Protection Bureaus and local governments are given – and taking – larger degrees of freedom in developing environmental priorities, strategies, financial models and institutional arrangements [8]. This is motivated by past state failures in national environmental policy, but also part of a wider tendency of less centralised control. Decentralised and more flexible environmental policies may be more effective as they can be better adapted to the local physical and socio-economic situation. But citizens' perceptions on the (environmental) performance of local urban governments are not very positive [9]. Hence, decentralised policies need to be

Figure 1



Environmental complaints by letters, visits and hotlines to Environmental Protection Bureaus, 1991–2006 (China Environmental Statistical Report, various editions).

paralleled by performance measurement, (environmental) auditing and accountability mechanisms, to make sure that local authorities give priority to the environmental concerns of citizens (and not to their own interest). The Quantitative Examination System for Comprehensive Urban Environmental Control and an emerging environmental auditing system are new developments in this regard [10,11,12<sup>••</sup>]. They ensure some form of national control, where environmental policy-making and implementation becomes decentralised.

The third major development is also instrumental is this: the strengthening of the rule of (environmental) law. The system of environmental laws has led to the setting of environmental quality standards and emission discharge levels. For a long time, being in conflict with the law was less problematic than being in conflict with administrations and policy programmes. This is now slowly changing. The strengthening of the rule of environmental law goes together more attention and resources for enforcement [13], a more formal enforcement style of EPBs, and stronger (financial) punishments of companies. Courts are getting more involved in enforcement, also through legal procedures initiated by citizens and environmental NGOs, such as the well-known Centre for Legal Assistance to Pollution Victims (CLAPV) in Beijing [14].

This increased involvement of citizens in environmental policy-making and implementation is the fourth main development. The 2003 Environmental Impact Assessment Law – and especially its 2006 public participation provisions – includes stipulations on openness of information; safeguarding participants' rights; and procedures and methods for public involvement, including opinion surveys, consultations, seminars, debates, and hearings [15]. Through public hearings citizens also become more involved, for instance in setting prices for water and wastewater treatment at the city level [16]. Citizens are

also actively engaged in monitoring and are (financially) stimulated to file environmental complaints on environmental misbehaviour of companies and on implementation failures by lower-level environmental authorities [17,18<sup>••</sup>](see Figure 1).

### Using markets and prices

Centrally planned economies did a poor job in setting the right price signals for a sustainable use of natural resources and a minimisation of environmental pollution. With a turn to a social market economy this is changing. In China, environmental protection slowly becomes part of markets, prices and competition, in four ways.

First, subsidies on natural resources (such as water and energy) are rapidly being abandoned, turning natural resource prices towards cost prices. For instance, water prices for citizens, industries and farmers, for instance, have increased sharply over the past decade, often with 10% or more per year [19,20]. Energy prices have also lost part of their subsidies. Higher energy prices contributed to higher energy efficiencies [21]. Sometimes, lower income groups are financially compensated for steep price increases. But natural resource prices seldom reflect all costs for repair of damage and environmental externalities.

Second, economic incentives, fees and taxes are increasingly used, to influence (economic) decision-making of polluters. In particular, discharge fees (related to the amount of pollution, or the amount of pollution in excess of standards) are common. In 2007 environmental authorities received around 174 billion RMB waste discharge fees, and this amount has been increasing over the past five years with 20–30% annually. Between 2000 and 2008, the average wastewater treatment charge per m<sup>3</sup> in the 36 largest cities increased with almost 300%. (*China Statistical Yearbook on Environment*, various editions). Fees are higher in heavily polluted and economically developed

areas. Many small and rural industries still managed to escape payment owing to lack of enforcement. In addition to these fees, a growing number of pilot projects on payments for environmental services can be witnessed, where resource consumers are financially compensated for less resource use (or less pollution) [22].

Third, private companies are increasingly becoming involved in executing public tasks and services on the environment. Urban service provisioning in drinking and wastewater [23<sup>•</sup>], energy [24], and solid waste management experiences all kinds of new public–private partnership models. Private (inter)national capital is included to remove financial shortages, poor service quality and inefficient operation. Environmental service functions of provincial environmental authorities are also partly privatised and commercialised (such as monitoring, education and information dissemination; [25<sup>••</sup>]).

Fourth, in the wake of China's accession to the WTO, market demand increasingly triggers transparency, information disclosure [26<sup>••</sup>] and greening of products and production processes. Supply chains start to articulate environmental interests [27<sup>•</sup>]. In China, a significant number of domestic labelling programs for green, organic, and healthy products have started, among others, in the field of food products, energy conservation, water conservation, and building materials [28,18<sup>••</sup>]. Although a domestic market does exist for green labels, most of the organic food production is for the international market. While company social responsibility reporting is predominantly linked to internationally operating enterprises, both Chinese and foreign ones, certification of company environmental management (with over 10 000 ISO14000 certified companies in 2008) have been adopted by all kinds of companies [29,30<sup>•</sup>,18<sup>••</sup>].

### Civil society and information disclosure

Besides a direct involvement of citizens in the making and implementation of environmental policies, China is also providing more room for citizens to organise themselves, express their environmental concerns and set new public agendas for environmental reform [31]. A growing sector of (semi)independent non-governmental organisations addresses environmental issues. There are now over 10 000 local, provincial and national environmental NGOs in China. The truly independent Chinese NGOs, also called grassroots NGOs, have far less impacts in China than the so-called Chinese-based western NGOs, owing to less funding and lower degrees of professionalisation. Some NGOs are still related to state organisations, the so-called Government-Organised Non-Governmental Organisations or GONGOs [32<sup>•</sup>]. The action repertoire, activities and networks of all these Chinese NGOs differ from those of NGOs in OECD countries [33]. This emerging green civil society is also noticeable in the media. A growing body of research

analyses mounting openness on environmental catastrophes in the mass media and on the Internet [34–36]. Especially on a local level and around national prestige projects as the 2008 Beijing Olympics 'conventional' reflexes of suppressing environmental criticism are still frequently reported. However, compared with sensitive issues as Tibet, the Falun Gong and Taiwan, the environment seems to experience limited reporting restrictions [18<sup>••</sup>]. In the tradition of right-to-know legislation, the 2008 Environmental Information Disclosure Decree forces authorities and companies to further open up their environmental information to the public. The independent Institute for Public & Environmental Affairs build already an Internet based, publicly accessible and interactive pollutant emission register for China (<http://air.ipec.org.cn/en/wrydt.jsp?ssqybh=0>).

### Conclusion: environmental effectiveness?

The assessment of these high dynamics and innovations in Chinese environmental governance has to be balanced, though. Not all these innovations are implemented throughout China. Many experiments prevail in some (usually the richer, eastern) provinces or metropolis and are absent in the peripheral and western ones. Numerous scholars report shortcomings and ambivalences in the functioning of these upgraded and/or innovative environmental institutions. There is also debate how effective the reported changes in environmental governance institutions and practices are in protecting the environment [37,38<sup>•</sup>]. And on all levels, economic priorities compete with other priorities. Sometimes the two are balanced and coordinated, such as in urban clean air policies in Chongqing [39<sup>••</sup>], but often policy elites favour economic development above environmental protection [40].

Overall, it is evident that China no longer ignores environmental problems and environmental quality. A vast literature gives evidence of the considerable legal, economic, social and political resources spend on designing and implementing new environmental institutions and practices. These institutional innovations have delinked economic growth from pollution and resource use, but they have not contributed to absolute reductions in urban and industrial emissions and energy use. Future research will especially have to focus on (i) assessing the functioning, diffusion and environmental effectiveness of these new institutions and practices, and (ii) the designing of new institutions that decrease emission and resource use levels.

### References and recommended reading

Papers of particular interest, published within the annual period of review, have been highlighted as:

- of special interest
- of outstanding interest

1. Carter NT, Mol APJ: *Environmental Governance in China*. London: Routledge; 2007.

2. Wiener JB: **Climate change policy and policy change in China.**  
  - *UCLA Law Review* 2008, **55**:1805-1826.

There are several net national benefits for China to become active in climate policy, both domestically and internationally.
3. Mol APJ, Liu Y: **Institutionalising cleaner production in China: the cleaner production promotion law.** *International Journal of Environment and Sustainable Development* 2005, **4**(3):227-245.
4. Eichhorts U, Bongardt D: **Towards cooperative policy**  
  - **approaches in China—drivers for voluntary agreements on industrial energy efficiency in Nanjing.** *Energy Policy* 2009, **37**:1855-1865.

An analysis of Chinese experiments of voluntary agreements in industrial energy efficiency. They are not so much avoiding stricter regulation, but rather an implementation tool for national policy at the local level.
5. Tao J, Mah DN: **Between market and state: dilemmas of**  
  - **environmental governance in China's sulphur dioxide emission trading system.** *Environment and Planning C: Government and Policy* 2009, **27**:175-188.

The pilot program in sulphur emission trading in China show a state-led pseudomarket for emission trading. More governing capacity is needed for a stronger rule of law, better information disclosure and public accountability.
6. MacBean A: **China's environment: problems and policies.** *The World Economy* 2007, **30**(2):292-307.
7. Economy E: **Environmental governance: the emerging economic dimension.** *Environmental Politics* 2006, **15**(2):171-189.
8. Lo CH-W, Tang S-Y: **Institutional reform, economic changes and local environmental management in China: the case of Guangdong Province.** *Environmental Politics* 2006, **15**(2):42-62.
9. Saich T: **Citizens' perceptions of governance in rural and Urban China.** *Journal of Chinese Political Science* 2007, **12**(1):1-28.
10. Mol APJ, Carter NT: **China's environmental governance in transition.** *Environmental Politics* 2006, **15**:149-170.
11. Gong T: **Institutionalizing learning and adaptation: developing state audit capacity in China.** *Public Administration and Development* 2009, **29**:33-41.
12. Gao J: **Governing by goals and numbers: a case study in the**  
  - **use of performance measurement to build state capacity in China.** *Public Administration and Development* 2009, **29**:21-31.

The central government translates macro policy goals in specific objectives, and assign performance standards to local governments. Performance measurement assess to what extent local governments fulfil priorities set by higher level authorities.
13. Van Rooij B: **Implementation of Chinese environmental law: regular enforcement and political campaigns.** *Development and Change* 2006, **37**(1):57-74.
14. Wang A: **The role of law in environmental protection in China: recent developments.** *Vermont Journal of Environmental Law* 2006, **8**:195-223.
15. Chen Q, Zhang Y, Ekroos A: **Comparison of China's environmental impact assessment (EIA) law with the European union (EU) EIA directive.** *Environmental Monitoring and Assessment* 2007, **132**(1-3):53-65.
16. Zhong L, Mol APJ: **Participatory environmental governance in China: public hearings on urban water tariff setting.** *Journal of Environmental Management* 2008, **88**:899-913.
17. Warwick M, Ortolano L: **Benefits and costs of Shanghai's environmental citizen complaints system.** *China Information* 2007, **21**:3237-3268.
18. Mol APJ: **Environmental governance through information:**  
  - **China and Vietnam.** *Singapore Journal of Tropical Geography* 2009, **30**(1):114-129.

Information is a powerful resource in environmental governance, especially in times of Internet and ICT dominance. China and Vietnam perform different degrees of monitoring, transparency and disclosure of environmental information.
19. Zhong, L., Mol A.P.J.: **Water price reforms in China: Policy-making and implementation.** *Water Resources Management* DOI: 10.1007/s11269-009-9451-0, 2009, forthcoming.
20. Webber M, Barnett J, Finlayson B, Wang M: **Pricing China's irrigation water.** *Global Environmental Change* 2008, **18**:617-625.
21. Hang L, Tu M: **The impacts of energy prices on energy intensity: evidence from China.** *Energy Policy* 2007, **35**(5):2978-2988.
22. Zhang L, Tu Q, Mol APJ: **Payment for environmental services: the sloping land conversion program in Ningxia autonomous region of China.** *China & World Economy* 2008, **16**(2):66-81.
23. Zhong L, Mol APJ, Fu T: **Public-private partnerships in**  
  - **China's urban water sector.** *Environmental Management* 2008, **41**:863-877.

There is massive private investment in the water utility sector in China, via different models of public-private partnership. It brings in much wanted additional capital, but the legal and regulatory frameworks still create uncertainties and might jeopardize safe water service.
24. Han J, Mol APJ, Lu Y, Zhang L: **Onshore wind power development in China: challenges behind a success story.** *Energy Policy* 2009, **37**(8):2941-2951.
25. Tang S-Y, Lo CW-H: **The political economy of service**  
  - **organizational reform in China: an institutional choice analysis.** *Journal of Public Administration Research and Theory* 2009 doi: 10.1093/jopart/mun029.

Twelve environmental service organizations related to the Guangdong Environmental protection Bureau show different degrees of autonomy and engagement in commercial activities.
26. Liu X, Ambumozhi V: **Determinant factors of corporate**  
  - **environmental information disclosure: an empirical study of Chinese listed companies.** *Journal of Cleaner Production* 2009, **17**:593-600.

Chinese companies disclose environmental information mainly following governmental requirements and hardly through pressure of other stakeholder and shareholders. Economically well-performing companies in richer provinces disclose most environmental information.
27. Zhang B, Bi J, Yuan Z, Ge J, Liu B, Bu M: **Why do firms engage in**  
  - **environmental management. An empirical study in China.** *Journal of Cleaner Production* 2008, **16**:1036-1045.

Active environmental management in Chinese environmental firms was especially triggered by the supply chain and communities. When enforcement is not an issue in local government, environmental authorities have hardly an influence on companies environmental management.
28. Paull J: **China's organic revolution.** *Journal of Organic Systems* 2007, **2**(1):1-11.
29. Yu J, Hills P, Welford R: **Extended producer responsibility and eco-design changes: perspectives from China.** *Corporate Social Responsibility Environment Management* 2008, **15**:111-124.
30. Welford R, Hills P: **People's Republic of China.** In *Global Practices of Corporate Social Responsibility*. Edited by Idowu SO, Filho WL. Heidelberg: Springer; 2009:183-199.
- Corporate social responsibility reporting in China is mainly driven by international, western brands. The Chinese government is actively promoting CSR on environment, labour and supply chain management to support the private sector's contribution to a 'harmonious society'.
31. Tang S-Y, Zhan X: **Civic environmental NGOs, civil society, and democratization in China.** *Journal of Development Studies* 2008, **44**:425-448.
32. Ho P: **Embedded activism and political change in a**  
  - **semiauthoritarian context.** *China Information* 2007, **12**(1):187-209.

Developments of new (environmental) social movements in China are multidimensional and cannot be understood with the idea of an authoritarian regime. China has become more open to civil society activism on the environment.
33. Xie L: *Environmental Activism in China*. London: Routledge; 2009.
34. Ma J, Webber M, Finlayson BL: **On sealing a lakebed: mass media and environmental democratization.** *Environmental Science & Policy* 2009, **12**:71-83.
35. Yang G, Calhoun G: **Media, civil society, and the rise of a green public sphere in China.** *China Information* 2007, **12**(1):211-236.

36. Yang G: **How do Chinese civic associations respond to the Internet? Findings from a survey.** *The China Quarterly* 2007, **189**:122-143.
37. Lo CW-H, Fryxell GE, Wong WW-H: **Effective regulations with little effect? The antecedents of the perceptions of environmental officials on enforcement effectiveness in China.** *Environmental Management* 2006, **38**:388-410.
38. Angel D, Rock M: **Environmental rationalities and the development state in East Asia: prospects for a sustainability transition.** *Technological Forecasting & Social Change* 2009, **76**:229-240.
  - Compares trends in environmental governance in various East Asia countries (among which China), and their relation to new, greener pathways of industrialization and urbanization.
39. Li W, Chan HS: **Clean air in urban China: the case of inter-agency coordination in Chongqing's blue sky program.** *Public Administration and Development* 2009, **29**:55-67.
  - Institutional capacity to address environmental problems is often lacking in China. Inter-agency coordination enhanced the clean air management and enforcement of the Environmental Protection Bureau in Chongqing.
40. Tong Y: **Bureaucracy meets the environment: elite perceptions in six Chinese cities.** *The China Quarterly* 2007, **189**:100-121.